NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD AND SPECIFICATION

CONTOUR BUFFER STRIPS

(Acre)

CODE 332

DEFINITION

Narrow strips of perennial vegetative cover established across the slope and alternated down the slope with wide cropped strips.

PURPOSES

- To reduce sheet and rill erosion.
- To reduce transport of sediment and other water-borne contaminants downslope, on-site or off-site.
- To enhance upland wildlife habitat.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on sloping cropland to reduce sheet and rill erosion and sediment yield, and on all cropland to enhance wildlife habitat.

The practice is impractical on undulating to rolling topography because of the difficulty of maintaining parallel strip boundaries across the hill slope or staying within row grade limits.

The narrow buffer strips of permanent vegetative cover are not considered a part of the normal crop rotation.

CRITERIA

General Criteria Applicable to All Purposes

a. Stable Outlets:

Surface flow from contoured crop rows must go to a stable outlet. Stable outlets include grassed waterways, underground outlets for terraces or diversions, water and sediment control basins, field borders, headlands or end rows, or similarly stabilized areas such as woody draws.

b. Arrangement of Strips:

Cropped strips shall be alternated with buffer strips down the hill slope. Normally, a crop strip will occupy the area at the top of the hill.

When used in combinations with terraces, the layout of buffer strips shall be coordinated with the grade and spacing of the terraces so that strip boundaries will parallel terraces wherever possible. The terrace channel shall occupy the buffer strip location or lie immediately below the last buffer strip.

c. Width of Strips:

The buffer strips shall be of equal width, except when a varying width buffer strip is needed to keep either a cropped strip adjacent to it of uniform width, to maintain the strip boundary within the criteria set above or in cases where elimination of point rows is desired. Width of buffer strips at their narrowest point shall be no less than 15 feet for grasses or grass/legume mixtures and no less than 30 feet when legumes are used alone.

Cropped strip widths shall not exceed 50 percent of either the slope length used for erosion calculation, or the critical slope length for strip cropping, whichever is least, determined by using approved erosion prediction technology.

d. Vegetation:

Vegetation grown on buffer strips shall consist of permanent grasses, legumes, or grass/legume mixtures and be adapted to the site. Choose and establish suitable cover from PASTURE AND HAYLAND PLANTING (512).

No plants listed on the noxious weed list of the state will be established in a buffer strip cropping system

Additional Criteria To Reduce Sheet and Rill Erosion

a. Row Grade:

The grade of the cropped strip shall be aligned as closely as possible to the contour to achieve the greatest erosion reduction possible. The maximum in-row grade of the crop strips shall not exceed the lesser of 1/2 percent of the up and down hill field slope or 2 percent, whichever is less.

Up to 3 percent row grade is allowed for a maximum of 150 feet as crop rows approach a stable outlet.

For crops sensitive to periods of ponded water of less than 48 hours, design a positive row grade of not less than 0.5 percent away from the nose of a hill or ridge toward a stable outlet.

b. Vegetation:

The buffer strips shall have a vegetative cover that provides protection and induces sediment deposition during periods when erosion is expected to occur on the cropped strips.

Stem density (tillers) for grass species after the second growing season shall be greater than 50 per square foot, and for legumes, greater than 30 per square foot.

c. Headlands or End Rows:

On fields where row crops are a part of the rotation, keep headlands or end rows in permanent sod if their row grade would be steeper than the designed grade of the crop strip.

Additional Criteria to Reduce the Transport of Sediment and Other Water-Borne Contaminants Downslope, On-site or Off-site.

a. Arrangement and Spacing of Strips:

A buffer strip shall be placed at the bottom of the slope. This width will be two times the width of the other buffer strips in the system.

The maximum width between buffer strips shall be 100 feet or one-half of the field slope length, which ever is smaller. This width may be adjusted to account for equipment sizes.

b. Headlands or End Rows:

Headlands or end rows shall be vegetated and have a minimum width of 15 feet between the end of the tilled strip and the fields edge.

c. Vegetation:

The buffer strips shall have a vegetative cover that provides protection and induces sediment deposition during periods when erosion is expected to occur on the cropped strips.

Stem density (tillers) for grass species after the second growing season shall be greater than 50 per square foot, and for legumes, greater than 30 per square foot.

Additional Criteria to Enhance Wildlife Habitat

a. Strip Width:

Contour buffer strip widths shall be 30 feet or wider as determined by the requirements for nesting and escape cover of the target wildlife species.

Buffer strips shall not be spaced wider than 300 feet between cropped strips.

b. Vegetation:

Specie mixtures recommended for wildlife are to be used.

Some weedy growth may be allowed in the strips as they provide a food source for young birds.

CONSIDERATIONS

Contour buffer strips are most suitable on uniform slopes ranging from 4 to 8 percent.

Once a buffer strip boundary reaches the allowable design grade, establish a new baseline up or down the slope from the last buffer strip. These transitional areas may be vegetated to minimize point rows.

Design and install the strip layout to best facilitate operation of all machinery used on the strips. Whenever possible, lay out strips to have some multiple of full implement widths used for the farming operation.

Prior to design and layout, consider removing any obstructions or making changes in field boundaries or shape, where possible and feasible, to improve the effectiveness of the practice and the ease of performing farming operations.

Prior to layout, inspect the field's position on the landscape to find key points for commencing layout or getting the width of one set of strips (one cultivated and one buffer) to pass by an obstruction or ridge saddle. Whenever possible to stay within grade limits, run strip boundary parallel with fence lines or other barriers.

Critical slope length can be increased by retaining crop residue on the soil surface of the cultivated strips using crop residue management practices. Certain tillage practices can also be used on the cultivated strips to increase random roughness to cause deposition to occur in depressions between soil clods.

PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, and narrative statements in the conservation plan, or other acceptable documentation. Species, site limitations, methods, equipment, season of year, and guides to pruning for the applicable purpose shall be considered.

OPERATION AND MAINTENANCE

Conduct all farming operations parallel to the strip boundaries except on headlands or end rows with gradients less than the criteria set forth in this standard.

Time mowing of buffer strips to maintain appropriate vegetative density and height for optimum trapping of sediment from the upslope cropped strip during the critical erosion period(s). Delay mowing until July 15 after ground nesting birds have hatched.

To enhance wildlife habitat, mow the buffer strips every third year. The residual cover provides early and late season nesting and escape cover for many species of wildlife displaced from other mowed areas. Mow from July 15 to August 15 to allow for regrowth before the growing season ends.

Fertilize buffer strips as needed to maintain stand density.

Where contour row curvature becomes too sharp to keep equipment aligned with rows during field operations, establish sod turn strips on sharp ridge points. In drainage ways, establish grassed waterways at least to the point of sharp curvature.

These strips shall be wide enough to allow the equipment to be lifted and/or turned and meet the same rows across the turn strip.

Renovate buffer strips damaged by herbicide application after residual action of the herbicide is complete.

Redistribute sediment accumulations along the upslope edge of buffer strips upslope over the cultivated strip when needed to maintain uniform sheet flow along the buffer/cropped strip boundary. This may be accomplished by farm equipment that moves soil uphill. If sediment accumulated just below the upslope edge of the buffer strip reaches a depth of 6 inches or vegetative ground cover falls below 75 percent in the buffer strip, relocate the buffer/cropped strip interface location.

Cultivated strips and buffer strips shall be rotated so that a mature stand of protective cover is achieved in a newly established buffer strip before removing the old buffer to plant and erosion-prone crop. Alternate repositioning of buffer strips to maintain their relative position on the hill slope.

Renovate headlands or end row area as needed to keep ground cover above 75 percent. Renovation shall only include the immediate seedbed preparation and reseeding to a sod-forming crop. Maintain full headland or end row width to allow farm implements room to double back on the same strip.